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REMARKS

Applicants continue to soldier on in an effort to address issues raised by the Examiner that are along the lines of limitations being treated as intended use rather than structural and more direct issues where the manner the Examiner is applying the art indicates that the claim elements are still not as clear to the Examiner as they should be. Even more time has been spent to carefully craft this response to simplify the claim language, to state every feature in structural terms and to clarify various features in the hope that the differences between the claimed subject matter and the prior art will be more clear to the Examiner. It seems the complexity of the obviousness rejections, which employ no less than four combined references, has been one of the barriers to effective communication. The way so many references have been tied together includes internal contradictions as to what features a specific reference has as well as rejections that focus on elements not even in the claims being rejected. Indeed this case is the first four reference obviousness rejection this attorney (Steve Rosenblatt) has seen in over 23 years of patent prosecution.

First, the anticipation rejection of claim 1 in view of Taylor USP 3,869,132 will be addressed. It appears that the Examiner was not persuaded that the nested first and second bodies distinguished from Taylor's flanged connection where bodies 10 and 11 abut with their central axes aligned. To clear up the claim beyond any doubt, it states that the first and second bodies have the first body extending into the second body while being radially spaced from it so as to create a longitudinally extending annular space that is defined by the radial gap between the first and second bodies. Applicants are at a loss as to how to describe a relationship illustrated in Figure 1 of the application in any clearer

terms. Taylor has no such structure. Taylor is about a gasket between flanges where each flange is attached to a pipe so that the flanges abut and the pipes extend away from each other, as opposed to a relation of one body extending into another as is made plain in claim 1. Nested is intended to mean and does mean one inside another, but now the claim literally says that.

There is no radial gap in Taylor. There is no ring that fits into a radial gap with an interference fit in Taylor. A radial gap and an interference fit are clearly structural limitations. Instead, there is an annular cavity 12 in body 10 and the seal ring assembly 14 and 15 simply drops into the cavity 12. When the flange bolts 13 are made up the metallic ring is squeezed axially. The concept of interference fit in a radial space between a body that is inside another body does not even get a mention in this reference. Insertion of the assembly 14 and 15 creates no force at all because the assembly is limp at this time until the flange bolts are made up. In claim 1 insertion into a radial space creates a force stored in a bend due to the interference fit which results in the force being applied against the first and second bodies that are radially spaced. In Taylor, there is no force stored in a bend from insertion into cavity 12. Even making up the bolts 13 in Figure 4 of Taylor the force created is axial between abutting pipes rather than radial as in a radial space between one body that is inserted into another as claimed in claim 1.

Claim 1 states the ends of the backup ring extend toward each other in a forcible gripping relation to the annular body. The Examiner contends this feature is disclosed in Taylor's Figure 4 with absolutely no discussion of this capability in the reference. The reference discusses the sinuous configuration that terminates in a convex region as making the outer legs more resilient (column 3 line 61 to column 4 line 9). Not only is

this discussion contrary to the claimed forcible gripping feature but the sole support for the way the Examiner reads this reference is derived exclusively from the drawing which is not drawn to scale and may not support conclusions relating to the existence of a forcible grip exclusively from an examination of a patent drawing. The Examiner has overlooked text relating to Figure 4 that suggests a wavy shape makes the ends more flexible and instead surmises a gripping relation solely from a drawing. Such a conclusion exclusively from a drawing is impermissible. This claim is clearly not anticipated by Taylor.

Claim 19 is rejected as anticipated using only Figure 3 of Kilmoyer USP 4,553,759. The Examiner dismissed the limitation of "before mounting" previously added to the claim as a method limitation. That language has been removed in favor of recitation of an interference fit at the bottom of the groove between the first ring and the bottom of the groove where it is disposed. So, now there are no intended use limitations for the Examiner to point to, simply a structural relation between a ring and the bottom of a groove that it contacts in an interference fit. To show this relationship to be anticipated the Examiner looks to Figure 3 and ring 80 in groove 86. He points to the circumference of ring 80 being different than the circumference of groove 86 based on scaling a drawing that to the Examiner shows ring 80 extending out of groove 86 to a point beyond the outer surface of seal body 72. Even if the drawing shows what the Examiner sees, what the Examiner sees is not what is claimed in claim 19. The ring in claim 19 is made to a dimension that will interfere with the dimension of the surface that defines the base of the groove. The Kilmoyer reference is utterly silent on this relationship or even why it might be important from a seal performance perspective. It makes no difference that ring 80

extends out of the groove 86 to beyond the outer surface of the seal body 72. Rather, what goes on at the contact between ring 80 and the surface at the base of the groove 86 (which is located where the lead line from 86 ends) is what counts. On that subject, this reference is silent leaving the Examiner to divine relationships from a drawing, which is not permissible in the absence of supporting text in the reference. Even the way the Examiner reads the drawing shows a basic misunderstanding of the claimed relationship in claim 19. It is about an interference fit at the groove bottom surface. It is not about ring 80 extending out of the groove 86 beyond the outer surface of seal body 72. This claim is not anticipated by Kilmoyer.

The specification in Kilmoyer has also been overlooked in the Examiner's reading of the Kilmoyer figures. In column 3 at line 22 it talks about how the load ring 44 that is placed inside the open end of the u-shaped body is supposed to function by spreading the legs of the body apart. There is no interference fit between the seal rings and their respective grooves. Rather, the rings fit loosely in their grooves until the load ring 44 is shoved in with the rings in place to spread the u-shape apart. That is not what is claimed in claim 19.

The discussion in rejecting claims 19 and 27 relating to a second ring at the bottom of page 3 of the Office Action is not understood as this feature is in neither of these claims. The same goes for all the discussion on the top of page 4 of the Office Action. Here again in the first complete paragraph on page 4 the Examiner simply reads Kilmoyer as showing a ring that has a bigger outer circumference than the groove it sits in. That is not what is claimed. What is claimed is an interference fit where the ring contacts the groove bottom, a feature not discussed in Kilmoyer.

Perhaps the discussion at the top of page 4 was meant to refer to the obviousness rejection of claims 20-22 over Kilmoyer? These claims are not obvious over Kilmoyer since as explained above Kilmoyer fails to suggest the interference relationship of claim 19. Claim 20 just makes that relationship more precise but the reference fails to even suggest that this relationship is even an issue in the seal performance never mind suggesting a degree for such a relationship. Claims 21 and 22 depend from 20 and are not obvious for the reasons explained in discussing the anticipation rejection of claim 19 and the obviousness rejection of claim 20 above.

We now swing back to claim 1 for the 4 reference combination used to declare that claim obvious. Here the base reference is McEver USP 4,496,162. Figure 2 shows the seal 36 in the relaxed position for run in and Figures 3 and 4 show it pushed down a ramp 28 into contact with the inner (but unnumbered) wall of tubular 12. Seal ring assembly 36 has end caps 50 and 52, as the Examiner points out and calls backup rings. However, the Examiner claims on page 5 that the backup rings 50 and 52 have ends 56a and 56b that extend toward each other. This is clearly not the case and the Examiner so admits at the bottom of page 6 after combining Vanderford with McEver, "McEver ....fails to disclose that the ends of the backup ring loop toward each other to create a gripping engagement with the body under residual force upon initial mounting to said body (intended use)".

It is not clear what the Examiner considers an intended use. It is clear that a forcible gripping relationship prior to insertion into the gap, as now claimed in claim 1 is entirely structural. The ends extend toward each other in a way that creates a grip of the

annular body before it is installed. Thus the base reference lacks this feature as the Examiner eventually admits.

The base reference lacks a bend that stays as a bend while contacting the annularly shaped body and exposed to pressure so that it can apply a force on the opposed bodies that define the gap due to a change in shape. So, the Examiner simply combines Vanderford and points to bend 112. However, as stated at the bottom of column 3 to the top of column 4 the purpose of the bend 112 is to strengthen the assembly 98 and then assume the solid line position shown in Figure 5. This happens because plastic packing under pressure is admitted into recess 106. Right here is a problem for the Examiner in combining these references. Vanderford's bend is externally energized from recess 106 to nearly flatten the bend 112 virtually out of existence. On the other hand, the seal assembly 36 in McEver is simply pushed down a ramp including the end caps 50 and 52 into a narrower annular space. There is no suggestion to combine a seal design that is activated by simply pushing it into position down a ramp with a wholly different design where the seals simply remain in a fixed position and are pressure energized into a recess 106. The presence of a bend 112 under the circumstances of a fixed seal that is pressure energized are wholly different than a ramped seal that doesn't even suggest awareness of the benefit of a bend.

Not stopping there, the Examiner adds Taylor Figure 4 and claims it would be obvious to combine with McEver. The Examiner has admitted McEver's backup ring ends do not converge or extend toward each other. Even in the set position of Figure 4 in McEver they look like they still diverge. Yet the Examiner concludes that Taylor's ends that converge (i.e. a direction opposite from McEver) would be an obvious design change

to McEver. Taylor actually has a bend in Figure 4 but it doesn't contact the annularly shaped body nor does Taylor mention any forcible gripping at the ends. Finally McEver needs a blunt surface on end cap 52 to contact the bottom of the setting sleeve 38 which is shown as flat. If the Figure 4 design of Taylor were used for end cap 52, the McEver sleeve 38 would simply collapse it as the bend in Taylor's Figure 4 enjoys no support from the rubber seal below it due to a gap.

Thus ends the combination of references that are pertinent to claim 1. As shown above, there is simply no suggestion to combine these references as the seal of the base reference McEver is ramped into position and not pressurized from a recess as in Vanderford. The McEver reference has diverging ends on the backup rings and the Taylor reference shows convergence with no indicated forcible grip. Taylor further has an unsupported bend which would not function in McEver due to lack of support from the underlying seal. The pressure in Vanderford virtually removes the bend 112 which is there for strength in resisting the applied pressure rather than enhancing sealing quality in a radial gap. Nothing about these 3 references suggests combining them to render the design of claim 1 obvious.

To this unlikely combination the Examiner adds Kilmoyer to presumably reject claim 5 which has the ring in groove feature. The reasons why Kilmoyer doesn't meet the claim language of claim 5 has been earlier stated with regard to the anticipation rejection of claim 19. The attempted combination of Kilmoyer with McEver is not suggested by these references. McEver is a solid ring with no internal or external grooves. It has end caps on both ends. Kilmoyer is a u-shaped ring with an open bottom into which a load ring 44 is inserted to keep the legs of the u-shape apart. The u-shape and the internal and

external grooves with seals in them that extend beyond the grooves are part of an integrated design in Kilmoyer. The Examiner cannot pick a single feature of this design, the grooves with rings of Kilmoyer, and select only that feature to combine into McEver. He is stuck with the other features of Kilmoyer's design when using one of its elements. However, McEver has a bottom ring and Kilmoyer can't work with a bottom ring, as it requires a u-shape to insert the load ring 44. McEver's backup rings 52 and 54 go down a considerable way down the opposed sealing sides. This feature of the backup rings makes it much more difficult to even find room for grooves with seal rings. Finally, McEver claims to have a working seal with no grooves simply using backup rings. There is no basis in the references to suggest that McEver envisioned outside grooves with rings as having any purpose in his design. Simply put McEver would require a total redesign to fit the bundle of details that comprise the Kilmoyer design. A design with opposed backup rings and no inner or outer grooves and that is actuated to seal by compression from the exterior is simply not compatible with one that is open on one end, uses an insert to spread ends apart and inner and outer rings in grooves to seal when the ends are spread apart. Claim 5 is not obvious over the combination of 4 references.

This 4 reference combination is used as the sole rejection of claim 28. To avoid repetition, the arguments above are relevant to this claim in that claim 28 has many of the elements of claim 5 but worded in a somewhat different way. This claim is not obvious for the same reasons.

Starting on page 11 of the Office Action claim 19 is rejected as obvious over a combination of McEver in view of Taylor and further in view of Kilmoyer. Why Taylor is even used against claim 19 is not clear as this claim has no backup rings that loop

toward each other to grip the body. While it is uncertain what the rejection actually is, it will be treated as a combination of McEver and Kilmoyer without Taylor. It has been discussed above why the Kilmoyer design is not compatible with McEver. Here are the highlights: McEver is a solid seal energized by compression into an annular gap while Kilmoyer is u-shaped with an energizing ring within. McEver teaches sealing directly on the body using end rings while Kilmoyer has an open end and rings that extend beyond an outer surface. In no way does Kilmoyer's ring provide a radial force in the groove. Instead, load ring 44 pushes the surfaces 60 and 68 apart after the rings 46 and 48 are inserted in the grooves. There is no discussion in Kilmoyer as to how each ring is dimensioned with regard to the body so as to create a force on the body. The Examiner at the bottom of page 13 argues that Figure 2 suggests that ring 46 has a circumference that is contracted to be placed in groove 56. Even if the ring 46 is folded to go into groove 56, that does not mean that when it is sprung out it that it will exert any force at all on the u-shaped body. Just the opposite, it is clear that the load ring 44 is where a radial force originates as described in the specification column 3 lines 22-36. The Examiner has simply read into Figure 2 of Kilmoyer features it doesn't have and has failed to consider the use of the load ring 44 as the generator of residual forces rather than a seal ring fitted in its groove.

All the claims are now submitted to be in allowable condition.

Respectfully submitted,

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